

**PR-R7-03-10050
Amendment 1
April 22, 2003**

Attachment L

**Addendum Number 2
Northwest Pipe and Casing/Hall Process Company Superfund Site Groundwater
Groundwater Circulation Well Treatment Systems and Soil Cap**



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ADDENDUM NO. 2

Project: Northwest Pipe & Casing / Hall Process Company Superfund Site
Groundwater Circulation Well Treatment Systems and Soil Cap

Date: Tuesday, April 22, 2003

The following additions, revisions, corrections, and clarifications contained herein shall become part of the Contract Documents for the Project, and shall be included in the Scope of Work and Bid Proposals to be submitted. References made below to Specifications and Contract Drawings shall be used as a general guide only. Bidders shall determine for themselves the full scope of work affected by the Addendum items.

SPECIFICATIONS

A. Section 02671

1. Paragraph 3.3.B. Make the following change:

The GCW borehole will be ~~46~~^{a minimum of 14}-inches in ~~inside~~ diameter, and will be drilled using an air rotary or other appropriate drilling technique suitable for sub-surface conditions at the site, as approved by OWNER. Drill cuttings will be visually examined for changes in lithology and observations will be recorded on the boring log by the OWNER.

B. Section 11201

1. Paragraph 1.3.B. Make the following change to the narrative, page 11201-2, last paragraph on the page:

The well casing will terminate at the bottom of the subsurface vault, in which the treatment process will occur. Groundwater will be pumped from the upper screen of the well via the influent pump, through a flowmeter, into an air stripping unit contained within the vault. An influent sampling port will be located prior to the air stripping unit. In the in-situ air-stripping unit, the water will be contacted with air, which will cause the volatile compounds to be stripped from the water into the exhaust air. The treated water will be pumped back down the effluent pipe, through the packer where it will discharge into the lower portion of the well and exit through the lower screen. An effluent sampling port will be provided prior to the treated water exiting the treatment vault. The influent and effluent submersible pumps shall be balanced such that the influent water volume equals the effluent volume. The air-stripping unit shall achieve a minimum removal efficiency of 95% for influent concentrations of 1.0 to 480 µg/l PCE, 1.6 to 330 µg/l TCE, and 1.0 to 400 µg/l VC. Influent concentrations

are based on the remedial goal and the maximum measured values from the October 2002 groundwater sampling event. Removal efficiency shall be measured by sampling the influent and effluent PCE, TCE, and VC concentrations after the groundwater completes a single pass through the unit. The CONTRACTOR shall ensure that the vapor treatment system is attaining a 99% removal efficiency of PCE, TCE, and VC during operation of the system, as determined by comparing influent and effluent concentrations to/from the vapor treatment system. CONTRACTOR should propose a vapor monitoring program that will be conducted on a monthly basis to show required treatment efficiency is being met and also use the monitoring program to determine frequency for changing out the vapor phase carbon and zeolite. The vapor monitoring is recommended to be field type monitoring, and does not require analytical sampling to be performed by an off-site laboratory.

2. Paragraph 1.3.B. Make the following change to the narrative, page 11201-3, last paragraph on the page:

The system shall be designed to operate initially in the reverse circulation mode, but shall have the flexibility to operate in the standard circulation mode described in Section 1.3.A. An IEG Technologies Reverse Circulation System, or equivalent, is recommended. Mechanical pumps are required for the system, an air lift system is not desired and will not be considered. Transducer controls for the variable frequency drives of the pumps are not desired and will not be considered.

3. Paragraph 1.6. Make the following change:

A. Apparent Low-Bid Submittal~~Bid~~ Package

1. The apparent low-bidder shall submit ~~Bid submittal shall include~~ all calculations performed by the CONTRACTOR apparent low-bidder (or CONTRACTOR apparent low-bidder's vendor) necessary to verify air-stripping removal efficiency. The CONTRACTOR apparent low-bidder shall also provide a description of the methods used in the calculations, which also describes any calculation not included because it is considered a trade-secret.
2. The apparent low-bidder shall submit all ~~Bid submittal shall also include~~ pump curves and blower curves necessary to verify the air to water ratio achieved by the proposed stripping system.
3. The apparent low-bidder shall submit ~~Bid submittal shall include~~ a conceptual equipment layout for each equipment enclosure, and a typical well vault construction. The conceptual layout shall show the approximate footprint of equipment within the enclosures. Conceptual layout shall also identify any system components the CONTRACTOR apparent low-bidder intends to combine within equipment enclosures that contain multiple systems, if any. The conceptual layout shall also identify the intended

manufacturer and model of air stripper to be used, along with approximate dimensions of unit.

4. Paragraph 1.7.B. Make the following change:

Any deviation from the design contained in these Specifications and Drawings should be well documented in the ~~bid~~apparent low-bidder submittal documents.

5. Paragraph 2.7.A. Add the following line items:

9. The water collected in the liquid knockout tank shall be conveyed back to the inlet of the air stripper so that the water is treated prior to being recirculated down the well.

10. The water level in the knockout tank shall not exceed 10% of the working volume of the knockout tank.

11. If the water level in the knockout tank should reach 20% of the working volume of the knockout tank, then the treatment system shall automatically shutdown and trigger the autodialer discussed in paragraph 2.13.C.

6. Paragraph 2.8.A.3. Add the following sentence:

The zeolite shall be Hydrosil HS-600 with XB-17 media, or approved equal. ~~Hydrosil is out of Elgin, IL.~~ The zeolite is for the removal of vinyl chloride from the vapor stream.

PLANS

A. Sheet E01

1. Delete monitoring wells MW-133 and MW-134 from this sheet (shown to the north of Lawnfield Road).

END OF ADDENDUM NO. 2